2.0 DESCRIPTION OF THE PROPOSED ACTION

The proposed action would retrieve up to 15,200 buried 208-liter (55-gallon) drums of post-1970, suspect CH-TRU waste from the 218-W-4B LLBG (Figure 3) and the 218-W-4C LLBG (Figure 7), over about a five year period. Retrieval might include a small quantity of containers other than 208-liter (55-gallon) drums, such as 38-liter (10-gallon) drums, 416-liter (110-gallon) overpack drums, and wood or fiberglass-reinforced boxes. The drums would be designated in the LLBG as containing TRU waste or LLW. Any drums that are determined to be LLW, estimated to be about half the drum total, would remain disposed of in the LLBG. Any unvented CH-TRU waste drums would be vented before leaving the LLBG. Those 208-liter (55-gallon) drums determined to be CH-TRU waste, and some of the other TRU waste containers would be transferred to CWC or another permitted TSD unit for storage, in accordance with the TSD unit waste acceptance criteria. All other TRU waste containers (e.g., boxes, RH-TRU) would be staged within the LLBG for later disposition.

The containers in all the trenches except Section V7 in Trench 7 of the 218-W-4B LLBG are stored in modules. A module is normally 3 or 4 layers of horizontally stacked drums. The number of containers in a module could vary, as some modules contain boxes in place of drums. Drums in V7 are placed on their side in a different configuration.

The proposed TRU waste retrieval flow diagram is described in Figure 8 and provides the following:

- Review record information on modules identified for retrieval
- Excavate overburden, place soil in spoil piles, and stabilize side slopes
- Remove metal cover from Section V7 in Trench 7
- Remove plastic module cover or tarp and remove plywood from drum tops
- Inspect drums for container integrity and container markings (overpack as necessary)
- Remove drums from stack
- Handle retrieved containers per LLBG operating procedures
- Stage suspect-TRU containers for assay and/or venting
- Perform assay to determine if TRU waste (100 nCi/g of transuranic isotopes) or LLW
- LLW remains in LLBG (continued disposal)
- Vent TRU waste drums if needed for transfer and storage
- TRU waste drums transferred to CWC or another TSD unit
- Most TRU waste boxes and RH-TRU waste are staged in the LLBG for future action
- Continue with additional modules
- Excavated spoil piles would be used to support typical LLBG operation activities.

The retrieval of buried post-1970, suspect CH-TRU waste is proposed to begin in 2002, and retrieve approximately 1,200 drums in the first year of operation. The peak retrieval plan between now and about 2006 would be to retrieve up to 5,000 drums in a 12-month period. After a records review is complete, TRU retrieval equipment would be mobilized in the LLBG. Various methods for excavating the covered drums and boxes might be employed. A mechanical scrapper might be used to remove the overburden followed by use of a soil guzzler, soil vacuum, or hand excavation to remove the remaining soil surrounding the drums. Exposed drums would be inspected for integrity, marked, labeled, and vented, if needed. Drums would be removed from the module and staged within the LLBG. Drums requiring nondestructive analysis (NDA) would be sent through a TRU waste drum assay mobile trailer (Figure 9 and 10), or similar assay equipment. TRU waste drums without vents would be placed in an area in the LLBG designated for venting drums with an appropriate venting device (Figure 11). Drums with suspect integrity would be overpacked. TRU waste drums would be bar code labeled and transferred to CWC or another TSD unit for storage. LLW would remain disposed of in the LLBG.

2.1 PROPOSED RECORDS REVIEW, LLBG MODIFICATIONS, AND STAGING OF EQUIPMENT

The following describes the waste records review, potential modifications to the two LLBG, and possible equipment staging activities that are expected to occur before retrieval of waste containers from the LLBG. During final set up, decisions to determine specific preparations and staging locations for equipment would be made. Operations would designate where the project support equipment would be located. No new permanent facilities are planned and all equipment/facilities would be located within the LLBG and only for the duration of the proposed action. Any of the potential modifications to the LLBG would be temporary in support of the proposed action.

Before physical retrieval of the waste, a review of existing waste records would be conducted. The reviewer would search available records such as the Solid Waste Information and Tracking System (SWITS) database, burial records, location maps, and supplemental generator records. A large portion of these data has been collected and included in published reports such as physical descriptions (WHC-EP-0225), radiological descriptions (WHC-SD-W113-PSE-001, WHC-SD-W221-DP-001, and WHC-SD-WM-TI-517), and hazardous constituents (WHC-SD-WM-TI-517) of the stored material. The reports indicate that the waste consists primarily of contaminated material enclosed in one or more layers of plastic wrapping, placed in an outer structure of a drum, box, or other container. The majority of the drums are 208-liter (55-gallon) drums. The boxes are a variety of sizes and materials. The data for the reports are derived from solid waste storage/burial records prepared at the time of storage, process histories, and interviews with personnel from the generating facilities. Because of waste management requirements and practices from before the mid-1980's, it is anticipated that storage/burial records for some containers might be incomplete or missing.

Before actual TRU waste retrieval activities, the work site in LLBG would be configured to facilitate operational efficiency. The designation of radiation zones, staging areas, barricades, necessary utilities, container movement paths, locations of the TRU waste drum assay mobile trailer (NDA), TRU waste drum venting locations, transportation loading, etc., would be made and the LLBG would be modified as necessary. Not all the equipment would be used continuously during the project, so mobilization would take place as the equipment was needed. The placement of equipment would depend on considerations of the space required for retrieval activities, radiological control, the space available in the trench, staging, and transportation needs. An effective placement strategy would minimize the required movement distances for the retrieval of drums while allowing for the efficient repositioning within the LLBG of those drums that are designated as LLW.

Potential LLBG modifications might include a temporary utility drop from a power pole or use of a portable generator(s). Other examples include drum storage shelters, office and change facility trailers, equipment laydown yards within the LLBG in portions of unused trenches, connex boxes or vans for storage, fencing, and temporary lighting.

2.2 PROPOSED RETRIEVAL ACTIVITIES

The excavation of soils and removal of plywood and tarp material from around the waste containers, container inspections, and other waste container retrieval activities as currently planned are detailed in the following paragraphs.

The most efficient methodology of removing the overburden from the drums would include the maximum use of heavy earthmoving equipment. When the quantity of soil removed with heavy equipment has reached close to the top of the drum modules, hand tools or vacuum systems (e.g. guzzler vacuum excavation system) might be used to complete the soil removal operations. The tarps and plywood sheets that separate the layers of waste containers might have deteriorated, while some might be reuseable. Operations would determine the disposition of these materials. Uncovered TRU waste containers would be inspected for signs of corrosion and degradation. Dust suppression would be employed as needed. The integrity of the trenches would be maintained to allow for long-term operations. In addition, there is no liquid effluent generated by normal retrieval operations.

The uncovering of waste containers in Section V7 in Trench 7 of the 218-W-4B LLBG (Figure 4) would vary from the methodology for excavation and removal from modules of all the other trenches of the proposed action as described previously. Section V7 was the first engineered storage location for drummed TRU waste. This section of the trench was constructed as a 90-degree V-shaped concrete slab. When filled with drums, the section was enclosed with a galvanized steel roof and covered with about 1 meter (4 feet) of earth and gravel. In this design, the drums were separated from the soil and moisture to reduce possible corrosion during storage. The overburden from the entire area of Section V7 would be removed to access the metal fabricated cover. After the overburden is removed, the cover can be removed either in its entirety or cut up into smaller pieces. All other aspects of retrieval remain unchanged.

If contaminated soil is encountered during retrieval, the personal protective equipment that personnel might be wearing would be adjusted as required. Small amounts of incidental contaminated soil might be placed in drums or boxes, and the packages would be staged as appropriate according to LLBG procedures, while the work planning required for final waste disposition is completed. Larger areas of contamination might be fixed and the area posted as required by the radiological control organization, but will not be remediated under the proposed action. Bulk transfer of contaminated soil for disposal in another trench in the LLBG also might occur. Clean soil from retrieval activities would be moved to/from other areas within the LLBG. Overpacking potential breached waste containers is a routine LLBG operation.

2.3 PROPOSED WASTE CONTAINER DISPOSITION

Waste container disposition, including waste designation, venting, staging activities, and TRU waste disposition are described in the following.

Initial container inspection would commence once the earth overburden, plywood, and protective tarps were removed, and the soil adjacent to the exposed containers was stabilized. The initial inspection would be a visual subjective determination of the container integrity and vent status.

Removal of the drums from the stacked module would use drum-retrieval lifting and moving equipment. An inspection area that facilitates a final visual inspection might be designated. Any container requiring final inspection might be relocated from the module to an inspection area.

Retrieval would be required from modules where the drums are stacked right next to each other. It is most likely that retrieval would be conducted from the open end of the row, but it is possible the initial drum retrieval might come from the center of the module if boxes bound both ends of the row. Retrieval of containers could be conducted with heavy equipment, cranes, large forklifts, etc., that might be located within the trench or between the trenches.

All retrieved containers would be inspected. The container inspection would consist of a visual examination to determine if there is significant corrosion, holes, dents, or other visual deformity. Primarily, the container integrity would be assessed. All containers might be moved, turned, or otherwise relocated within the LLBG to facilitate an adequate visual inspection. Containers of questionable integrity can be safely retrieved, provided precautions and possible repackaging are performed. Operations would determine if containers with questionable integrity could provide secure containment for container contents while being removed from the stack. LLBG operating procedures would be established to safely deal with these containers.

TRU waste container inspection and retrieval might encounter containers with higher than CH dose rate limits. These containers would be placed in a safe and segregated location while maintaining safety for personnel using as low as reasonably achievable (ALARA) principles. Temporary shielding such as lead blankets may be used to lower dose rates for any of the containers.

After a drum is inspected visually and structural integrity is established, the drum may be staged for either NDA (with the use of assay equipment) or venting. LLBG operations would designate the location of the staging area that provides for the efficient movement of drums. It is projected that the drum retrieval rate would exceed the assay rate. The NDA staging area within the LLBG would be sized accordingly to ensure adequate space is available for the expected backlog of drums waiting to be assayed. The placement of drums in the staging area would conform to the applicable safety requirements, and would be subject to the routine inspections required of all uncovered TRU waste drums.

The NDA process would include all necessary equipment, TRU drum assay mobile trailer (Figure 9) and assay equipment (Figure 10), utilities, and personnel required to monitor and perform the analysis. LLBG personnel would perform drum handling activities, including placement and removal of the drums from the assay system. The drums to be assayed would be moved to the TRU drum assay mobile trailer drum in-feed area using the appropriate handling equipment. The drums would be assayed and moved out of the unit. The assaying process would include the required quality assurance/quality control verification of accuracy of the analysis. Following assay, the drums would be segregated according to waste type (TRU or LLW).

The drums segregated as LLW according to the NDA results or alternative designated methodology would be kept in the LLBG.

TRU waste drums that do not have a venting device upon initial retrieval would have an approved venting device installed via a proven process that ensures personnel and environmental protection. The installation of a venting device would require penetrating the drum and inserting a high-efficiency particulate air (HEPA) filtered venting device (Figure 11). Following venting, the drums would be moved to the staging area with the other TRU waste drums awaiting transfer to CWC or another TSD unit, or to the NDA staging area for assay. The sequence of assaying drums or inserting a venting device might be done in any order. There are minimal fugitive dust emission releases anticipated from the proposed action.

Following NDA (and drum venting if required), those drums determined to be TRU waste drums would be staged for transport. It is projected that the drum retrieval rate occasionally would exceed the transportation rate out of the LLBG. The transportation staging area within the LLBG would be sized to ensure adequate space was available for the expected backlog of drums awaiting transportation and would provide adequate spacing between drums to allow for labeling, inspection, and final preparations for transfer.

The necessary paperwork for all transfers of TRU waste containers meeting the waste acceptance criteria at CWC or another Hanford Site TSD unit would be checked and verified. The TRU waste

containers would be transported to CWC or another TSD unit. On arrival, the paperwork and TRU waste containers would be inspected, off-loaded, and placed into storage within the TSD unit.

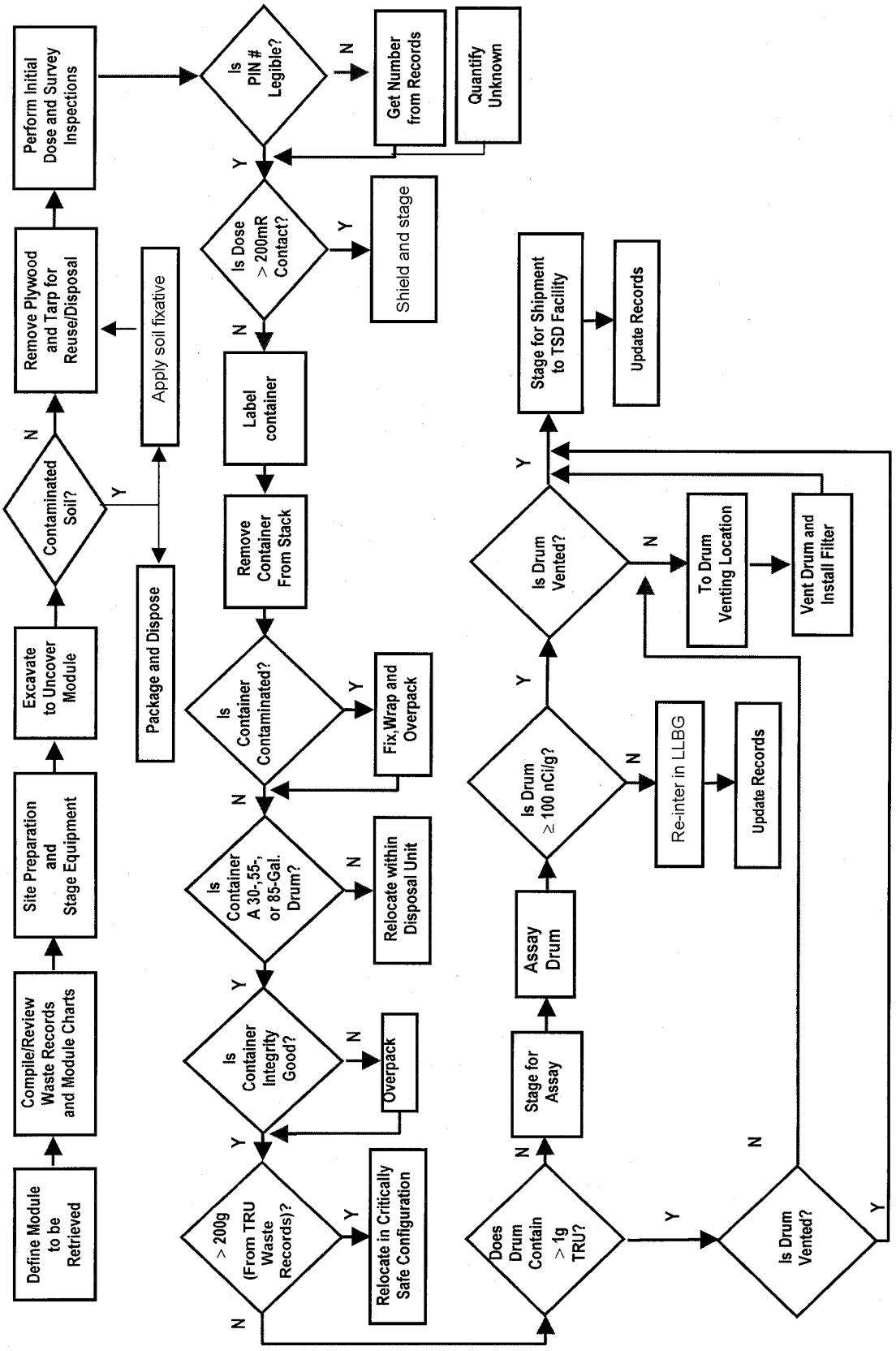

Figure 8. TRU Waste Retrieval Flow Diagram.
(The order or steps may change depending on operational conditions)

Figure 9. TRU Waste Drum Assay Mobile Trailer (Example).

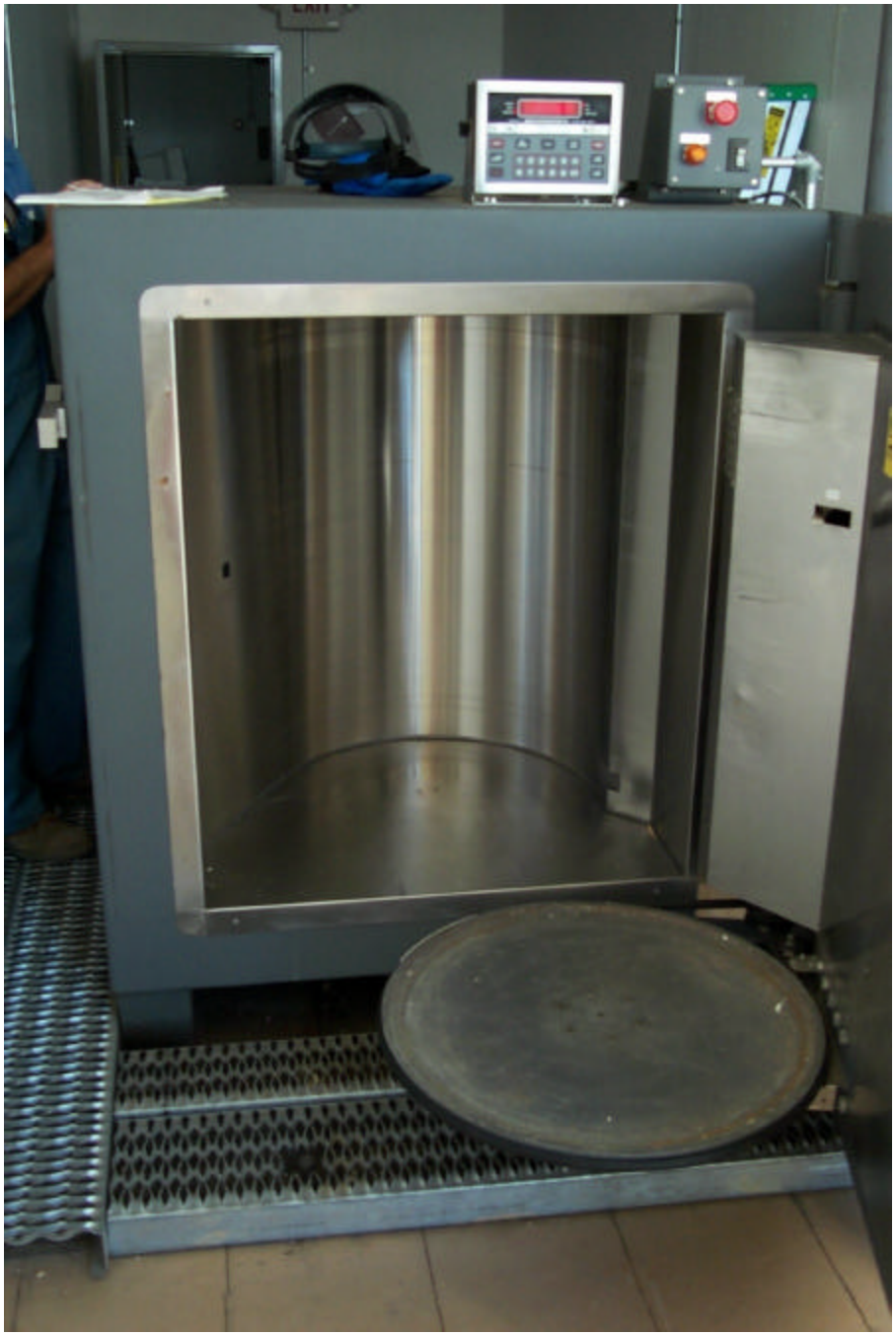

Figure 10. TRU Waste Drum Assay Equipment (Example).

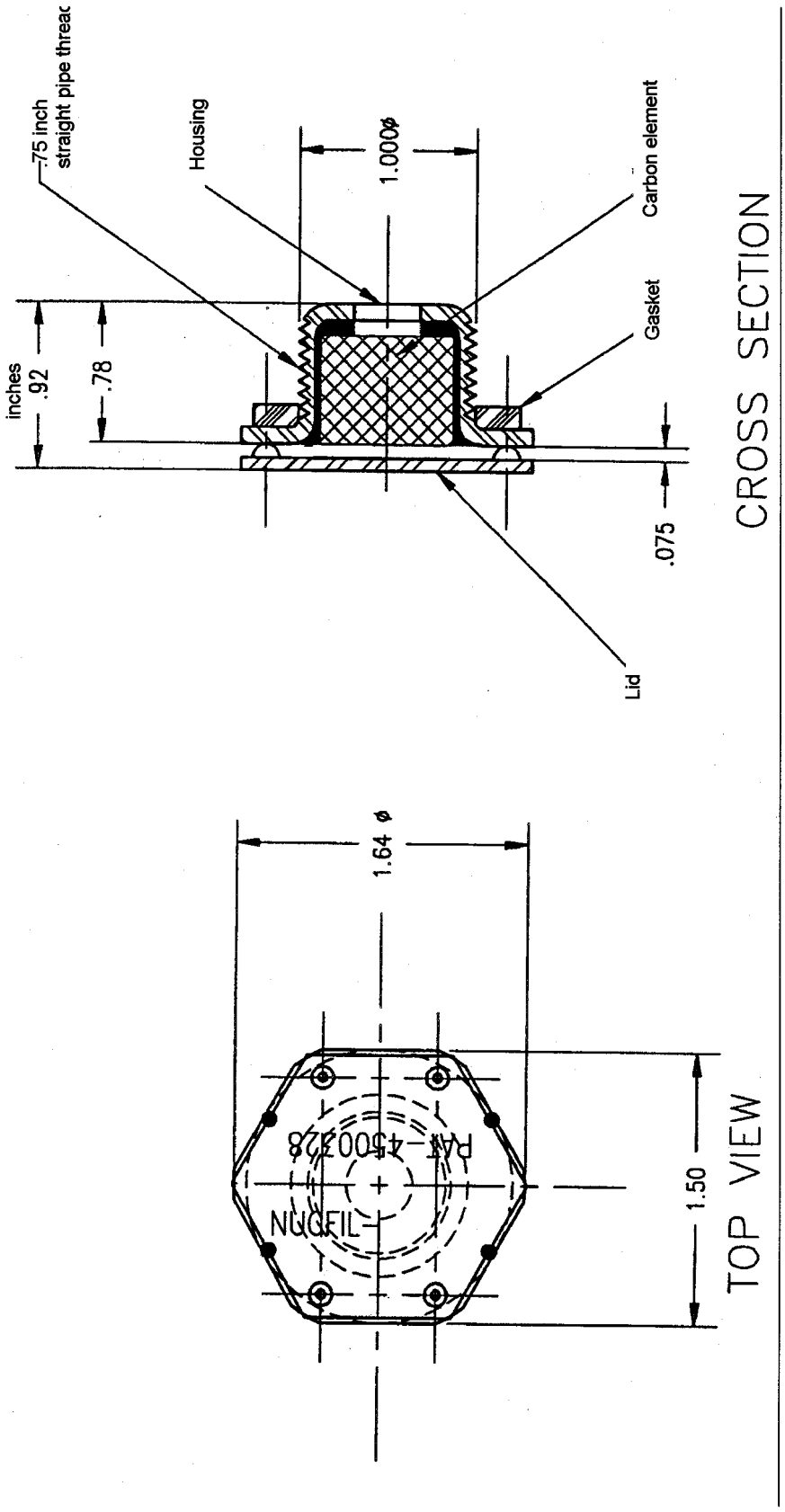

Figure 11. HEPA Filtered Venting Device for Drums (Example).

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